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Induction of the unculturable state in Escherichia coli K12 with 2,4,6-trinitrotoluene

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Abstract

The toxic effect of high (200 mg/l) 2,4,6-trinitrotoluene (TNT) concentrations on Escherichia coli K12 cells in the absence of exogenous nutrient sources (incubation in 0.5% NaCl) was shown to manifest itself in the transfer of the culture to an unculturable but viable state; its reversal depends on the duration of culture contact with the xenobiotic and the conditions of cell recultivation. The likelihood that cell succession to death forms the basis of the physiologo-biochemical mechanism of the unculturable state in Escherichia coli K12 population under conditions of combined toxic and starvation stress is discussed. © 2008 MAIK Nauka.

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Keywords

2,4,6-trinitrotoluene (TNT), Cell succession to death, Escherichia coli K12, Toxicity, Unculturable state